

Amendments to the Specification:

Please replace the paragraph beginning at page 13, line 8 with the following rewritten paragraph:

--Referring to Figure 1, which is a schematic depiction of floating production systems on the sea surface 10 and extending from the seabed 12 through a distance of ocean, including a portion 14 having sea currents and a portion 15 without significant sea currents. Examples of various ocean equipment to which the invention may be usefully applied are depicted, including a sea floor drilling rig 16, a ship 18, a columnar-supported drilling platform 20, a ~~floating platform~~ 22 and a spar platform 24, as well as a collection vessel 26. Risers 28 are shown extending from the seabed 12 to the collection ship 18 where hydrocarbons are pumped on board from the risers and transported to an appropriate port facility where similar risers may offload the petroleum products to a refinery. The drilling or production platform 20 is schematically depicted with a drill casing 30 extending to the floor surface and also support legs 32 on which the drilling or production platform is secured to the sea floor 12.-

Please replace the paragraph beginning at page 14, line 26 with the following rewritten paragraph:

--The vessel 50 is shown held in place by anchor ~~cable~~ cables 62 attached to sea anchors 64 so that the conduits 66 from the connection head to the production vessel 50 are retained in a relatively stable position. The VIV reduction mechanism 56 applied along cylindrical riser 54 comprises a plurality of VIV reduction column ~~segment~~ segments 70. These have been labeled starting at the topmost as VIV reduction

**A2**

column segment 70a with the next columnar segment 70b, 70c and etc. Each columnar segment is rotated relative to the next such that a sharp ~~notches, grooves or discontinuities~~ 72a, b, c, d, e, etc. are notch, groove, or discontinuity, as described below, provided in each columnar segment, is circumferentially displaced relative to the notch, groove or discontinuity in the adjacent segment.—

**A3**

Please replace the paragraph beginning at page 16, line 21 with the following rewritten paragraph:

--Referring now to Figure 4, one embodiment of a riser support column with risers encased in a foam retaining material is schematically depicted with a partial perspective view of one portion of a riser support cylinder assembly having foam material in cylindrical quadrants encasing a plurality of risers and further providing additional buoyancy VIV reduction mechanisms clamped around the periphery of the cylindrical support structure. Particularly, a metal cylinder 102 provides the main riser support and a plurality of petroleum recovery risers 104a, 104b, 104c, 104d are provided along with control cables 106a and 106b as well as additional pressurizing pipes 108a, b and 108c and d as well as gas recovery pipes 110a and 110b (110b not shown in Figure 4). The VIV columnar segments 70a, 70b, 70c, and 70d are shown constructed of four VIV reduction column sections, the risers, conduits and control cables extending along the length of support cylinder being ~~are~~ encased within four molded polymeric foam sections 120, 122, 124, and 126 making up each of the columnar segments 70a, 70b, 70c and 70d. Adjacent ones of sections 120, 122, 124 and 126 need not be the same cross-sectional shape, although it is preferred that respectively opposing sections, i.e., 120 and 126

**A3**

124, and 122 and ~~124~~ 126, be the same shaped as their opposed section. These sections are respectively "split" at junctions 146 and 148 (not shown ~~if~~ in Fig 4, see Fig. 5) for petroleum recovery risers 104a, 104b, 104c and 104d and include half-circle cut-outs for these risers. Sections 122 and 126 include outwardly open cut-outs for cables 106a and 106b, and sections 120 and 124 include inwardly open cut-outs for gas recovery lines 110a and 110b. The construction of these sections will be more fully understood with reference also to Figure 5 which is across-sectional view of VIV reduction riser assembly according to Figure 4 taken along section line 5-5. ~~two of which~~ 128 and 130.

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Please replace the paragraph beginning on page 19, line 21 with the following rewritten paragraph:

--Figures 10, 11, 12 and 13 are schematic cross-sectional views taken at section lines at 10-10, 11-11, 12-12, and 13-13, respectively. Each cross-sectional depiction represents 90° rotation of each third one of the columnar sections each rotated 30°. In figure 10 an indication of a perspective view is depicted in phantom lines in combination with the solid line cross-sectional view to assist in visualization of the construction of the discontinuity or notch ~~182a~~ 192a. Although the embodiment depicted shows a cross-section of a substantially cylindrical column segment that is slightly eccentric rather than perfectly cylindrical, the construction may be understood in terms of a nominal diameter D represented by numeral ~~184~~ 194. Referring again to Figure 9 the height of each column ~~185~~ 195 is conveniently in a range of between one half times D to about five times D, to permit offsetting of the discontinuities by the desired rotation angle, however, the ratio is not critical to

the invention. Longer columnar segments might be used, for example, where a plurality of notches 182 192 are formed in each columnar segment rather than the single notch as depicted in Figures 9 through 13. The notch or discontinuity has a substantially flat face 183 193 that provide a corner along the ~~length of~~ 185 height 195 of the column. The face 193 has a depth B represented by numeral 187 197 into the eccentric surface of the cylindrical column 181a 191a. Depth B consist of a portion C represented by numeral 188 198 that accomplishes the eccentricity of the columnar segment and the remainder which corresponds to the reduction in the radius less than the nominal diameter D. The size of the notch depends upon the specific conditions of use. Of course, the rotation need not be 30 degrees, as any offset sufficient to create any pattern of notches effective to diminish VIV will suffice. Again with reference also to Figures 10, 11, 12 and 13 each of which depicts a cross-sectional view of the VIV reduction mechanism 190 at Section lines 10-10, 11-11, 12-12 and 13-13, respectively. In the embodiment depicted in Figures 19 9 through 13 as more specifically set forth with reference to Figures 10 and 11, the cylindrical columnar segments 192 have a diameter D represented by numeral 194. The longitude and the length of each column is between one-half times D and five times D as represented by reference ~~rule~~ numeral 195. The discontinuity or notch 192a has a flat face 193 that is radianly radially aligned with the central axis of the VIV columnar segment 191a and has a flat surface 195 projecting at right angles from face 193. This produces a sharp exterior corner at 198 that facilitate initiation of the shear shedding as discussed previously. The depth ~~of the~~ phase B represented by numeral 197 may be in the range of .1 to .3 times the

diameter D. The face 195 has a width A represented by numeral 196 that may be in the range of .3 to .8 times the nominal diameter D. --

Please replace the Abstract on page 32 with the following rewritten Abstract:

--A mechanism to be applied to an exterior surface of a cylindrical structure for the reduction of the effect of Vortex ~~Induced~~ Induced Vibration (VIV) ~~in the~~ in the cylindrical structure when immersed in flowing fluid. ~~The mechanism is provided with~~, wherein the mechanism includes a generally cylindrical column having a central axis, an interior surface corresponding in size and shape to the exterior surface of the cylindrical structure to which the mechanism is to be applied and an outer surface defining a wall thickness. A reduced wall thickness is formed into the outer surface in a pattern to produce a discontinuity that interrupts the lengthwise coherence of vortex shedding of moving fluid from the outer surface when the cylindrical column is attached to the exterior of the cylindrical structure in the flowing fluid. The effect of VIV on the cylindrical structure is effectively reduced. A The result is a submergible cylindrical assembly for positioning in a flowing body of water and having enhanced resistance to ~~vortex induced vibration is disclosed~~ VIV. The cylindrical assembly comprises a cylinder having an axis, an outer surface and a wall thickness. The cylinder has a pattern cut into the outer surface thereof that selectively reduces the wall thickness of the cylinder such that the formation of vortices is reduced, thereby reducing or eliminating the lift force on the cylinder and reducing or eliminating the ~~vortex induced vibration that may weaken or damage the cylinder~~.